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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,974	12/15/2003	Evan K. Ohriner	1318	4278

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EXAMINER

MORILLO, JANEL COMBS

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/735,974

Applicant(s)

OHRINER ET AL.

Examiner

Janelle Combs-Morillo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                                         |                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                             | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>092005,083005,121503</u> | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 6, 7 are rejected under 35 U.S.C. 102(e) as being anticipated by US 2004/0238599 A1(US'599).

US'599 teaches a weld tool made from a tungsten-based refractory alloy consisting of (in wt%) 4wt% Re, 0.5% HfC, balance tungsten (see [0018]), which falls within the composition given in claims 1, 2, 6, and 7. Said tool comprises a substrate of said alloying ranges (#102). Because US'599 teaches an example within the instant alloying ranges, it is held that US'599 anticipates the presently claimed invention.

Concerning dependent claims 2 and 7, US'599 teaches hafnium carbide is present, and therefore Hf and C are in an atomic ratio of 1:1.

3. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by "Fracture-Resistant Ultralloys for Space-Power Applications" (hereinafter Tsao et al).

Tsao teaches a high temperature ultralloy consisting of (in at%) 20% Re, 0.35% HfC, balance W (p1050, Fig. 1), wherein said alloy is used for devices/tools in the thermal-field-emission applications including emitter tips that carry high current densities (p1050). Because

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Tsao teaches an example within the presently claimed alloying range, it is held that Tsao anticipates the instant invention.

Concerning dependent claim 2, Tsao teaches hafnium carbide is present, and therefore Hf and C are in an atomic ratio of 1:1.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 5, 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US'599 as applied to claims above, in view of JP02-030774A (JP'774).

US'599 does not teach a surface layer of BC, HfC, TiC, NbC, etc. However, JP'774 teaches that a surface layer of NbC improves the service life of tools by inhibiting seizing and preventing occurrence of surface defects (abstract). It would have been obvious to one of ordinary skill in the art to add a surface layer of NbC to the W alloy taught by US'599, because JP'774 teaches said layer improves the service life of tools by inhibiting seizing and preventing occurrence of surface defects (abstract).

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over "Fracture-Resistant Ultralloys for Space-Power Applications" (hereinafter Tsao et al).

Tsao teaches a high temperature ultralloy consisting of (in at%) 20% Re, 0.35% HfC, balance W (p1050, Fig. 1), wherein said alloy is used for devices/tools in the thermal-field-

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emission applications including emitter tips that carry high current densities (p1050). The instant alloy composition when converted to at% is equivalent to: 20% Re, 0.24% Hf, 0.24% C, wherein 0.24% HfC is substantially close to 0.35% HfC taught by the prior art.

A prima facie case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Court held as proper a rejection of a claim directed to an alloy of “having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium” as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium.). Because the alloying ranges taught by Tsao are close enough that one skilled in the art would have expected them to have the same properties, it is held that Tsao has created a prima facie case of obviousness of the presently claimed invention.

7. Claims 4, 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsao as applied to claims above, in view of JP02-030774A (JP’774).

Tsao does not teach a surface layer of BC, HfC, TiC, NbC, etc. However, JP’774 teaches that a surface layer of NbC improves the service life of tools by inhibiting seizing and preventing occurrence of surface defects (abstract). It would have been obvious to one of ordinary skill in the art to add a surface layer of NbC to the W alloy taught by Tsao, because JP’774 teaches said layer improves the service life by inhibiting seizing and preventing occurrence of surface defects (abstract).


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*Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs-Morillo whose telephone number is (571) 272-1240. The examiner can normally be reached on 8:30 am- 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCM   
October 27, 2005

  
GEORGE WYSZOMIERSKI  
PRIMARY EXAMINER  
GROUP 1700